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ABSTRACT

This study identified the needs and concerns of English speaking public secondary school biology, chemistry, and physics teachers in the five geographic regions of the Republic of Lebanon. Data were collected using a demographic questionnaire, a modified version of the Moore Assessment Profile (an instrument developed to assess the needs of secondary science teachers), and the Teacher Concerns Statement (an instrument based on the Concerns-Based Adoption Model). Although all English speaking science teachers were contacted, 65 usable returns were received (58 percent). Results indicate that: physics teachers shared 6 high-priority in-service needs; chemistry teachers shared 9 high-priority needs; and biology teachers shared 21 high-priority needs. Physics, chemistry, and biology teachers across the regions had mostly medium-level concerns (task concerns: issues related to management, efficiency, organization, scheduling, time demands, adequacy of curricula, and availability of instructional materials and laboratory equipment), and high-level concerns (impact concerns: issues related to the impact of teaching on students' performance and competence, and changes needed to increase student outcomes). The high-priority needs and predominant concerns of public secondary biology, chemistry, and physics teachers in Lebanon's different geographic regions must be addressed if the conditions and effectiveness of these teachers are to improve. (Author/JN)

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A PROFILE OF THE NEEDS AND CONCERNS OF ENGLISH-SPEAKING PUBLIC SECONDARY SCIENCE TEACHERS FROM FIVE GEOGRAPHIC REGIONS OF THE REPUBLIC OF LEBANON

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TITLE OF THE STUDY

A profile of the needs and concerns of English-speaking public secondary science teachers from five geographic regions of the Republic of Lebanon.

PURPOSE OF THE STUDY

The purpose of this study was to identify the needs and concerns of English-speaking public secondary physics, chemistry and biology teachers in each of the five geographic regions of the Republic of Lebanon.

THEORETICAL BASIS FOR THE STUDY

Lebanese teachers in general, and public secondary school science teachers in particular have been strongly criticized for their incompetence in teaching. The underachievement of science students, as evidenced by the results of official examinations, has led the community as a whole to direct the blame toward public secondary school science teachers.

> One important reason for the falling standards of school education in the country, despite revision and modernization of curricula, has been that the teacher is grossly neglected... As a result, a school teacher lacks motivation with regard to teaching as well as learning. Devotion and commitment have no rewards (UNESCO, 1982, p.11).

In light of this reality, it seems evident that public secondary school science teachers need help to improve their teaching effectiveness. Sayyali (1966)

indicated that science teachers in twenty-eight official schools of Beirut, Lebanon, needed refresher courses, summer institutes, as well as, in-service training in science subject matter. Weiss (1978) reported that many teachers wanted help so that they could teach more effectively, and that teachers had a strong desire to strengthen their own understanding of science and mathematics, and to seek help from experts for assistance in their teaching problems.

Many science teachers in Lebanon have never had the opportunities to express their needs and concerns about teaching science. Furthermore, they have not had the necessary renewing and updating of their knowledge in both content and methodology. NSF (1982) reported that there were few available opportunities for certified mathematics and science teachers to update or broaden their skills and backgrounds. Failing to renew and update the skills and knowledge of secondary science teachers would lead to an inadequacy in their knowledge and ineffectiveness in their teaching.

> Unless in-service training and staff development opportunities for teachers are improved, the present knowledge and skill levels of science teachers will grow increasingly outdated and inadequate to meet current demands for effectiveness (NSF, 1980, p.146).

The lack of in-service programs that meet the perceived needs and concerns of secondary school science teachers has left most secondary school science teachers in Lebanon frustrated and deprived of what is due to them, and has consequently reduced their teaching effectiveness.

Taking the aforementioned facts into consideration, it is evident that there is an urgent need to renew and update the skills and knowledge of public secondary shool science teachers in Lebanon. Before this is done, the needs and concerns of these teachers must be determined. Such needs and concerns will constitute the essential background on which to build the different activities of in-service programs.

Rubba (1981) identified the needs of Illinois secondary level science teachers in grades six through twelve.

> (It is necessary) for those who direct science teacher in-service programs to attend to the primary axiom of in-service education. The needs of every science teacher who will participate in an in-service program must be assessed prior to planning and instituting the activities (Rubba, 1981, p.276).

In a similar study, Moore (1973) identified the in-service needs of secondary school science teachers in Harris County, Texas.

> Pre- and in-service programs should be developed and implemented to eliminate the needs shared by all secondary science teachers as well as those needs shared by only by specific groups of secondary school science teachers (Moore, 1978, p.347).

Unless in-service program activities respond to the needs and concerns of teachers, such activities will not be welcomed by those teachers because they do not perceive these activities as important or as pertinent to what they really need. Teachers' effectiveness and enthusiasm in teaching are enhanced when they feel that they are being involved in decision-making regarding activities that are prepared for them and that aim at improving the teaching situation in which they are working.

PROCEDURES OF THE STUDY

INSTRUMENTS:

A set of three questionnaires were used to conduct the study: a Demographic Questionnaire, a modified version of Moore Assessment Profile (MAP), and the Teacher Concerns Statement (TCS).

The Demographic Questionnaire was developed in order to enable the researcher to categorize the science teachers according to the geographic regions they are teaching in, or the science disciplines taught, and to ascertain the nature of the surveyed

science teachers. The Demographic questionnaire included a check list of ten items: location of school, teacher gender, highest degree attained, college attended, major science subject now teaching, classes now teaching, teaching experience, number of hours taught per week, year last course in education was taken, and year last course in science was taken.

The Moore Assessment Profile (MAP) is an instrument which had been developed to assess the needs of secondary school science teachers (Moore, 1977). It contains 117 need statements for which surveyed teachers rate the intensity of their need on a four point scale (not needed=1, little needed=2, moderately needed=3, much needed=4). Using the Hoyt's analysis of variance method, a reliability estimate of 0.98 was established on the MAP during its development. Construct validity was established using factor analysis.

The modified version of MAP which was used in this study included translations of few selected items into the Arabic language, as well as the deletion of some items that are inapplicable to the educational system in Lebanon. The adaptation of MAP was guided by the results of a pilot study and the feedback collected from a series of interviews with a sample of public

secondary school science teachers in Lebanon, science educators at the Lebanese University as well as at the American University of Beirut.

Teacher Concerns Statement (TCS):The TCS was developed by the Personal-Professional Development Systems Division of the Research and Development Center for Teacher Education at The University of Texas at Austin. The instrument consists of a single open-ended question to which the subject responds in an unstructured manner. The question is stated as follows: When you think about teaching science what are you concerned about?

SAMPLE AND DATA COLLECTION

The total number of English-speaking public secondary school science teachers in Lebanon for the academic year 1982-1983 was 120. Eight of those 120 teachers participated in a pilot study that was conducted between mid-December, 1982 and mid-January, 1983. The comprehensive study included all English-speaking public secondary school science teachers from the five geographic regions of Lebanon, and was conducted between mid-May, 1983 and mid-July, 1983. In the regions Beirut, South Lebanon, and part of the Mountain of Lebanon, the researcher delivered the questionnaires to the individual teachers and conducted

interviews with a random sample of those teachers. In the regions, North Lebanon, Bekaa Valley and part of the Mountain of Lebanon, questionnaires were sent to the individual science teachers together with a cover letter via the treasurers of the public secondary school systems in those regions. A total of 5 biology teachers from the two regions, North Lebanon and Bekaa Valley were not represented in the study. Usable returns were received from a total of 65 science teachers (58%).

RESULTS OF THE STUDY

Physics teachers from the five geographic regions shared six high-priority needs (A high-priority need is a need that was rated as "much needed" or "moderately needed" by at least 50% of the teachers). The six high-priority needs of physics teachers were distributed across two of the six categories of needs contained in NAP. Five high-priority needs were from category 5, needs related to more effective use of instructional materials, and one was from category 6, needs related to the self-improvement of the classroom science teacher.

Chemistry teachers from the five geographic regions shared nine high-priority needs which were distributed across three of the six categories

contained in NAP. Six high-priority needs were from category 5, needs related to more effective use of instructional materials, two were from category 3, needs related to the development of better classroom management practices, and one was from category 2, needs related to the betterment of diagnosis and evaluation practices.

Biology teachers from the three geographic regions, Beirut, Mountain of Lebanon, and South Lebanon shared 21 high priority needs which were distributed across four of the six categories of needs contained in NAP. Twelve high priority needs were from category 5, needs related to more effective use of instructional materials, six were from category 6, needs related to the self-improvement of the classroom science teacher, two were from category 4, needs related to improvement of classroom instruction and planning, and one was from category 3, needs related to the development of better classroom management practices.

Physics, chemistry, and biology teachers across the geographic regions were highly concerned about a variety of issues which were mostly medium level concerns (task concerns) and high level concerns (impact concerns). The most frequently mentioned concerns included; lack of laboratory equipments and

audio-visual materials, overcrowdedness of classes, lack of in-service activities for science teachers, inadequacy of the science curriculum and textbooks, weakness of students' background, and a strong desire on the part of the teacher to enable students to relate scientific knowledge to their everyday lives and to help them develop their critical thinking and analytical reasoning abilities.

IMPLICATIONS OF THE STUDY

The high-priority needs and predominant concerns of public secondary science teachers in the different geographic regions of the Republic of Lebanon must be addressed if the conditions of science teachers in Lebanon are to improve. Regional and national in-service programs for science teachers should be designed to focus on teachers' needs and concerns regarding their knowledge and skills in teaching.

Secondary science teaching in Lebanon can not be improved through continuous criticism of science teachers who have been neglected for more than a decade. The effectiveness of science teaching can be improved by assessing the needs and concerns of these teachers and preparing in-service activities that acknowledge and compensate for these needs and concerns.

Bibliography

Moore, Kenneth D. "An Assessment of Secondary School Science Teacher Needs", Science Education 62(3): 339-348, 1978.

Moore, Kenneth D. "Development and Validation of a Science Teacher Needs Assessment Profile," Journal of Research in Science Teaching, 14(2): 145-149, 1977.

NSF (National Science Board), "Today's Problems, Tomorrow's Crises." Washington, D.C.: U.S. Government Printing Office, October 18, 1982.

NSF (Office of Program Integration, Directorate for Science Education.) "What are the Needs in Precollege Science, Mathematics, and Social Science Education? Views from the Field." (National Science Foundation Report, SE 80-9.) Washington, D.C.: U.S. Government Printing Office, 1980.

Rubba, Peter A. "A Survey of Illinois Secondary School Science Teacher Needs.", Science Education 65(3): 271-276, 1981.

Sayqali, Samya "Evaluation of Competency of Elementary Science Teachers in the Lebanese Official Schools," thesis, American University of Beirut, 1966.

UNESCO, "Developing Materials for Biology Teaching", Report of a Sub-regional Workshop, UNESCO Regional Office For Education in Asia and the Pacific, Bangkok, 1982.

Weiss, I.R. "Report of the 1977 National Survey of Science, Mathematics and Social Studies Education," (National Science Foundation Report SE 78-72.) Washington, D.C.: U.S. Government Printing Office, 1978.

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